UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/437,971	11/10/1999	CHENGIUN JULIAN CHEN	YO999-426	8698

7590 01/19/2006

WILLIAM E LEWIS
RYAN & MASON L L P
90 FOREST AVENUE
LOCUST VALLEY, NY 11560

EXAMINER	
SPOONER, LAMONT M	
ART UNIT	**PAPER NUMBER**
2654	

DATE MAILED: 01/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/437,971	CHEN ET AL.	
	Examiner	Art Unit	
	Lamont M. Spooner	2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's arguments, see remarks, filed 10/31/05, with respect to 35 USC 112 rejections have been fully considered and are persuasive. The rejection of claim 19 has been withdrawn.

Response to Arguments

2. Applicant's arguments filed 10/31/05 regarding the claims have been fully considered but they are not persuasive.

In response to Applicant's arguments, p.9, para. 4-p.5.para. 2, "Ellozy is a word-based indexing system and in such word-based indexing systems... Thus, the invention proposes an indexing and searching approach that is not word-based but rather is semantic unit based, as is recited in the claims." The Examiner is unable locate where the searching approach is not word based, in the claim. Wherein, the semantic unit, which comprises a minimal unit of language having a semantic meaning, can also comprise words (applicant's specification, p.2.lines 22-24, "It is to be appreciated that a "morpheme" is a minimal semantic unit in a language that is recurrent and meaningful. It may be a part of a word, **or a word**...", at the very least in claim 1 (claim 19, and 20), if the morpheme is a word, applicant has a word based retrieval system, which Ellozy teaches, and furthermore, words inherently comprise morpheme(s). Furthermore, Applicant argues, p.10.para 5 Yamada is still a word-based index and search system. Close inspection of Fig. 3 items 71 and 72 illustrate the indexing system used in the searching for a "desired data item" C.7.lines 13, 14. Col. 4.lines 45-60-teach

having the syllables, the index letters, designate the location of a retrievable desired data item, C.5.lines 58-61. Thus, taken in combination with Ellozy's retrieval method, one skilled in the art can use Yamada's syllable retrieval method to retrieve a desired data item, taken as the audio segment, as it relates to the semantic unit. Close inspection of Yamada, C.7.lines 14, 15, 48-50, Fig. 3, teach that the index, explicitly assists in the search of a desired data item.

The Examiner duly notes, applicant's argument, p.11.para. 2, "...there is no direct correspondence between any syllables in Yamada and any stored audio segments that is used to obtain a location indicative of where the at least one segment is stored so that the segment may be retrieved." However, the Examiner utilizes Ellozy for these features combined with Yamada as having a direct correspondence between syllables and stored desired data items (which in combination with Ellozy who provides desired audio segments-combines to form the desired data items as audio segments, see rejection of claim 1 below) that is used to obtain a location indicative of where the at least one segment is stored so that the segment may be retrieved (Yamada, C.5.lines 58-61, Fig. 3, and C.4.lines 45-60). As claimed, claims 1, 19, and 20, are broad enough for a word-based retrieval system to read on the limitations, wherein the limitation, "wherein a semantic unit *comprises* a minimal unit...", comprising not interpreted as consisting of, and as stated before, every word comprises a morpheme. Nevertheless, the Examiner has cited Yamada as teaching the searching method to involve indexed syllabic assistance, as it relates to any dependent claims.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-20, 23 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellozy et al (Ellozy US 5,649,06) in view of Yamada (US 6,166,733).

As per claims 1 and 19-20, Ellozy et al teach a method of processing audio-based data associated with particular language, the method comprising (figure 3):

"Storing the audio-based data" (his Audio/Video recording 12, col. 5, lines 5-20),.

"Generating a textual representation of the audio-based data the textual representation being in the form of one or more semantic units corresponding to the audio-based data" (his Automatic Speech Recognizer 31 and his Decoded Text 38,. col. 5, lines 30-35),. and

"indexing the one or more semantic units and storing the one or more indexed semantic units for use in searching the stored audio-based data in response to a user query" (his indexing 60, co1.7, lines 13-20), wherein at least on segment of the stored audio-based data is retrievable by obtaining a location indicative of where the at lest one segment is stored form a direct correspondence between at least one of the indexed semantic units and the at least one segment (Fig. 5, C.10.liens 10-31)

.It is noted that Ellozy teaches the claimed invention but does not explicitly teach wherein a semantic unit comprises a minimal unit of language having a semantic

meaning. However, this feature is well known in the art as evidenced by Yamada who teaches at col. 4, lines 45 to col. 5, lines 9, indexing a Chinese/Japanese index based on syllable which is a minimal unit of language, Yamada teaches, C.7.14, 15, "an index indicator that provides an index for assisting a search for a desired data item. Therefore, the Examiner interprets the indexed syllables as being used in searching. Therefore, one having ordinary skill in the art at the time the invention was made would have it obvious to recognize that the keyword/keyphrase based indexing of Ellozy could be further indexed based on syllable as taught by Yamada because it would facilitate the sorting and would save space in the memory allocation.

As per claim 5, Ellozy et al teach wherein the generating step comprises decoding the audio-based data in accordance with a speech recognition (figure 3, his automatic Speech Recognizer 34, col. 5, line 30-32).

As per claim 6, Ellozy teach wherein the speech recognition system employs a semantic unit based language model (col. 6, lines 47-65, his word language model).

As per claim 7, Ellozy teach "wherein the indexing step comprises time stamping the one or more semantic units" (col. 5, lines 47 to *1. 6, line 30, his time stamping of the indexed words).

As per claim 14, Ellozy teach, "wherein the one or more semantic units are indexed according to speaker attributes" (C.1.lines 60-67-loudness of the speakers voice, C.5.lines 10-20).

As per claim 15, Ellozy teach "wherein the one or more semantic units are indexed according to at least one of when the audio based was produced and where the audio based data was produced" (figure 3, his time alignment 42).

As per claim 23, Ellozy teaches "the user query comprises a word" (C.2.line 40 target recognized word).

As per claim 27, Ellozy teaches "the generating step comprises producing the textual representation via stenography" (C.1.lines 43-48, C.5.lines 14, 15).

As per claim 28, Ellozy teaches "the searching step (C.2.lines 39, 48-the searching) comprises use of a hierarchical index (C.3.lines 54-56-ordered series of index-hierarchical index).

As per claim 29, Ellozy teaches "the searching step comprises use of an automatic boundary marking system (Fig. 5, C.10.lines 10-31-the time stamp automatically sets boundaries used in searching).

As per claims 2-4 Yamada teaches "wherein the semantic unit is a syllable, wherein the syllable is a phonetically based syllable"; and wherein the semantic unit is a morpheme (col. 4, lines 45 to *1. 5, lines 9).

Therefore, it would have been obvious to modify Ellozy with Yamada by including indexed syllables used in the searching. The motivation for doing so would have been to facilitate faster searching (c.2.lines 55-57).

5. Claims 21, 22, and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellozy et al (Ellozy US 5,649,06) in view of Yamada (US 6,166,733), and further in view of Lee (US 5,220,639).

As per claim 21, Yamada teaches "employing a syllable language model" (c.4.lines 20-24). Therefore, it would have been obvious to modify Ellozy with Yamada by having the speech recognition system of Ellozy employ the syllable language model of Yamada in place of Ellozy's language model. The motivation for doing so would have been to facilitate faster searching (c.2.lines 55-57).

Ellozy in view of Yamada do not teach transcribing audio data to generate syllables, deriving conditional probabilities of distribution based on the generated syllables, and using syllable counts and the conditional probabilities to construct the syllable language model.

However, Lee teaches transcribing audio data to generate syllables (Fig. 1-input speech-output-is the transcription), deriving conditional probabilities of distribution based on the generated syllables, and using syllable counts and the conditional probabilities to construct the syllable language model (Fig. 1-input speech, Fig. 2-HMM, Initial/transitional/observational probabilities interpreted as the conditional probabilities of distribution based on the generated syllables, C.3.lines 25-27-character syllables, C.7.line 27-C.8.line 6-count occurrence frequencies characters/syllables, Markov Model Chinese Language Model-the counts and probabilities are used in the construction of the syllable language model. Therefore, it would have been obvious to modify Ellozy and Yamada with Lee by producing a syllabic language model of Yamada in the well known manner of Lee. The motivation for doing so would have been to correctly transcribe input speech (C.2.lines 3-6).

As per claim 25, Lee further teaches a phonetically-based syllable comprises a toneme (C.4.lines 33-35, 39,40-tone, syllable).

As per claim 26, Lee further teaches two or more different pronunciations are associated with a phonetically-based syllable (C.4.lines 31-37-the multiple pronunciations "ba-1, ba-2" are associated with a phonetically-based syllable reducing the 1300 to 400-phonetically-based syllables).

As per claim 24, Ellozy and Yamada do not explicitly the searching step further comprises transforming the word into a sequence of syllables using a text-to-phonetic syllable map. However, Lee further teaches "transforming a word into a sequence of syllables using a text-to-phonetic syllable map" (C.7.lines 43-46-computer is transformed to a sequence of syllables, from text-to-phonetic syllables-necessarily comprising a map). Therefore, it would have been obvious to modify Ellozy's search method by transforming the query word into syllables. The motivation for doing so would have been to have a syllabic description of an input word, for use in searching which enhances the speed in searching (Yamada C.4.lines 45-53).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Lee et al., Syllable-Based Relevance Feedback Techniques for Mandarin Voice Record Retrieval Using Speech Queries, 1997, IEEE, pp.1459-1462, teaches audio retrieval using a syllable based retrieval method.

- Ferrieux et al., Phoneme-Level Indexing for Fast and Vocabulary-Independent Voice/Voice Retrieval, April 1999, ESCA ETRW workshop Accessing information in spoken audio, Cambridge, pp 1-4, teaches phonemic syllable indexing for fast voice retrieval.
- Chang et al., Improved syllable-based continuous Mandarin speech recognition using intersyllable boundary models, 25th May 1995, Electronic Letters, Vol.31 No. 11, pp 853-854-teaches generating a textual representation of audio-based data in the form of semantic units, which are syllables.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lamont M. Spooner whose telephone number is 571/272-7613. The examiner can normally be reached on 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571/272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RICHEMOND DORVIL
SUPERVISORY PATENT EXAMINER

lms
1/11/06